

### REMARKS

The Examiner has rejected claims 19-23, 26-33 and 39-52 under 35 U.S.C. §112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. The Examiner goes on to state the individual areas of claims 19, 20, 25, 26, 31, 39, 44 and 45 that for the most part were elements that lacked antecedent basis.

Applicants have amended claims 19, 31 and 39 by canceling “the flow” and adding a flow. Claim 20 has been amended by adding “flow measuring device being a” prior to “laminar flow element” not only providing the proper antecedent basis but also more precisely claiming that which is regarded as the invention. Claim 25 has been amended by more accurately positioning the solenoid valve in parallel “with the partial flow dilution tunnel between said first mass flow controller and said partial flow dilution tunnel inlet and said partial flow dilution tunnel outlet and said second mass flow controller”. Applicants have cancelled claim 26 correcting the antecedent basis problem. Claim 45 has been amended by deleting “~~divides the dilution airflow into~~” and replacing this term with “includes”. The Examiner points out in line 2 of claim 39 that “and supply dilution air” is unclear. However, after careful review of claim 39 Applicants contend that such a phrase does not exist and no action has been taken. Applicants have amended claim 44 by inserting “includes a selectable gain switch being” after “selectable gain circuit” and deleting “~~settings~~” after “coarse” and inserting “voltage positions”. Applicants contend that the aforementioned amendments correct all of the Examiner’s rejections in regards to indefiniteness. Applicants therefore contend that claims 19-23, 26-33 and 39-52 meet the requirements of 35 U.S.C. §112, second paragraph and respectfully request reconsideration and withdrawal of the rejections thereof.

The Examiner has rejected claim 37 under 35 U.S.C. §112, first paragraph, as failing to comply with the enablement requirement. The Examiner further explains: “The claim contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to

make and/or use the invention. The Examiner further states that it is unclear how a probe is a “square root extractor”.

Applicants respectfully traverse the Examiners rejection under 35 U.S.C. §112, first paragraph. Those skilled in the art recognize that it is well known that the differential pressure produced by a moving fluid across a restriction (such as a probe, baffle or orifice) is proportionate to the square of the velocity of the fluid, and hence it is necessary to extract the square root of this difference in pressures in order to obtain a reading which is directly proportionate to the velocity. Therefore those skilled in the art will readily recognize the term for such a probe or orifice as being a “square root extractor”. Furthermore MPEP 2164.01 states the test for enablement as follows: “The test of enablement is whether **one reasonably skilled in the art** could make or use the invention from the disclosures in the patent coupled with **information known in the art** without undue experimentation.”. A patent **need not teach, and preferably omits**, what is well known in the art. Applicants respectfully request reconsideration and withdrawal of the rejection under 35 U.S.C. §112, first paragraph.

The Examiner has rejected claims 14-52 under 35 USC §103 (a) as being unpatentable over Hendren US Patent Publication 2003/0136177.

Applicants have amended claims 14 and 34 to more positively set forth, that which is regarded as the invention as stated above. Specifically, claim 1 has been amended by including that “the transient dilution air control arrangement includes a constant mass flow stream and a variable mass flow stream for controlling a dilution air supply to said partial flow dilution tunnel”. This is not taught or suggested in the Hendren reference. The Hendren reference teaches that dilution air is provided by a fixed flow rate pump 29 and the flow therefrom is controlled by a proportional solenoid valve 28. One skilled in the art would readily recognize that the proportional valve 28 creates a backpressure in the line from the fixed flow rate pump 29. This backpressure therefore causes the flow rate out of the pump 29 to be the same as the flow rate coming from proportional valve 28. Thus, what Hendren teaches is one stream of dilution air and that the quantity of dilution air being controlled by the proportional solenoid valve 28 and nothing more. Therefore the flow of air from the pump 29 is identical to the flow coming from the proportional valve 28. Hendren therefore

cannot and **does not divide the dilution air** into a constant mass flow stream that is connected (summed, or otherwise combined) with a variable mass flow stream. Hendren only teaches the supply of dilution air, in a single stream that is controlled by way of the proportional solenoid valve 28. Furthermore, Hendren teaches that the dilution air is controlled in an inverse proportion to the ratio of engine air inlet flow rate and the engine inlet air flow rate at idle. This is contrary to the teaching of the present application specifically, the present system teaches that the exhaust gas sample is maintained proportional relative to the engine intake air flow. This is an error in the disclosure of the Hendren application. Applicants remind the Examiner that MPEP § 2143 Mandates the three criteria that must be met to provide a prima facie case for obviousness:

“...three basic criteria must be met. First, there must be some motivation, either in the references themselves or in knowledge generally available to one of ordinary skill in the art, to modify the references or to combine the reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claimed limitations.”

Specifically, as now claimed in independent claims 14 and 34 the transient dilution air control arrangement includes a constant mass flow stream and a variable mass flow stream for controlling a dilution air supply to said partial flow dilution tunnel. This is clearly contrary to the teachings of the Hendren reference that teaches a single flow from a fixed displacement pump that is controlled by a proportional solenoid valve. Therefore there is no motivation for the transient dilution air control arrangement, of Hendren, to include a constant mass flow stream and a variable mass flow stream for controlling a dilution air supply to said partial flow dilution tunnel as is presently claimed in independent claims 14 and 34. Furthermore, the teachings of the Hendren reference are different from the teachings of the present invention by stating the dilution airflow is controlled in an inverse proportion to the ratio of intake air flow and the engine intake air flow at idle and therefore cannot provide a reasonable expectation of success. Lastly, the Hendren reference does not teach or suggest the features of claims 14 and 34. Applicants therefore contend that claims 15-33 and 35-52 respectively add additional features to claims 14 and 34, which are believed to be in

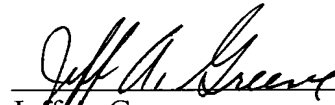
condition for allowance and respectfully requests reconsideration and withdrawal of the rejection under 35 USC §103 (a) of claims 14-52.

The Examiner has provisionally rejected claims 14 - 52 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 - 13 of copending Application 09/905,698.

As in the copending application Applicants are quite confused by the Examiner's provisional rejection under the judicially created doctrine of obviousness-type double patenting and respectfully traverse this provisional rejection. Specifically for the reasons as follows: First, the copending application for which this rejection is based was filed due to a restriction requirement placed on the instant application, by the Examiner, which contained all of the pending claims 14-52 of the instant application and claims 1-13 of copending application No. 09/905,698. Therefore the basis for the Examiners provisional rejection is based on the new understanding of the claims of both applications and not the result of claims 1-13 of copending application No. 09/905,698 **as they are now amended** (i.e. not the result of Applicants action). Second, the term of a divisional (or parent of a divisional) will be the date of 20 years from the filling of an earlier patent for which priority is requested (therefore no undue extension of patent rights). However, Applicants do understand that a terminal disclaimer requires a statement that causes a patent to be unenforceable if it ceases to be commonly owned with the other application or patent and therefore have provided an appropriate terminal disclaimer in an effort to move both applications towards allowance.

It is respectfully urged that the subject application is in condition for allowance and allowance of the application at issue is respectfully requested.

Respectfully submitted,

A handwritten signature in cursive script, reading "Jeff A. Greene", is written over a horizontal line.

Jeff A. Greene  
Registration No. 45,756  
Patent Agent  
Caterpillar Inc.

Telephone: (309) 675-1056  
Facsimile: (309) 675-1236  
G:/JAG/Amend/00-714.1.doc